FUELADE TECHNOLOGIES PRODUCTION PROCESSES PROJECT

Project Sponsor / Client: Fuelade Technologies, LLC

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SDSM&T Project Program: Industrial Engineering & Engineering Management

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Project Overview:

Fuelade Technologies, LLC. was formed in 2008 in the State of South Dakota. We manufacture a non-toxic combustion enhancer that encourages a more complete burn of fuel in the combustion chamber. This allows diesel engines to operate at their full potential resulting in more pulling power, acceleration with better fuel economy and reduced emissions. The organization is still very much in the start-up phase, but beginning to experience significant growth. As such, we have an immediate need to further develop formalized processes and documentation of procedures and work instructions.

For the Production Processes Project, the firm is seeking the following deliverables:

- Bottling equipment research, system proposal, and implementation
- Packaging/Shipping procedures, testing results, and processing specifications

Student project team members will research equipment and design a bottling production processes. They will coordinate this design with the firm's personnel as necessary to develop a proposal and possible implementation of their designed system.

Project Background:

Fuelade Technologies has developed a new, non-toxic combustion enhancer that encourages a more complete burn of fuel in the combustion chamber by cleaning valves, pistons and cylinder walls. This allows diesel engines to operate at their full potential resulting in more pulling power, acceleration and better fuel economy. The catalyst in Fuelade provides essential oxygen and hydroxyl radicals during the critical stages of the combustion cycle. These intermediate combustion species improve combustion of the diesel fuel, reduce soot formation, and lower the emissions of unburned hydrocarbons and carbon monoxide. There is also evidence that the catalyst lowers the flame temperature in the engine, resulting in lower nitrogen oxide (NOx) emissions.

Unlike some fuel additives that contain suspended minerals that settle, Fuelade is a chemical solution that is bonded at the molecular level. This means consistent and optimal performance over time without the formation of potentially harmful mineral deposits. Fuelade is very concentrated. One 16-ounce bottle treats 1,000 gallons of diesel fuel.

Thus far, independent Fuelade case studies have resulted in an average MPG increase of over 23% for the diesel vehicles tested with corresponding reductions in carbon emissions.

Project Team Requirements and Deliverables Description:

This project will require a team of approximately four senior design students. The following deliverable items are expected for this project:

Bottling Equipment Research – identify viable options for filling and packaging the bottles of product for the firm, compatible with their methods of raw material handling.

Bottling System Proposal – using best practices, identify and quantify appropriate metrics and costs to select a system and develop a proposal for purchasing and implementation of the best system.

Packaging/Shipping Procedures – using information from vendors, and possibly implementation data, develop a set of specifications, and procedures/work instructions for operation of the system through packaging and shipping. Verify the performance of these systems by assisting with the initial tracking implementation.

These items are expected within the time frames and along with the other deliverables described in the Industrial Engineering and Engineering Management Senior Design Projects document. That document provides a more complete description of the process, deliverables, and timing of SDSM&T IEEM Senior Design Projects.